

IN THE CLAIMS:

1. (Currently Amended) A method to enable a wireless device to provide recommendations to its user that is appropriate to the device's current environment, comprising:

- receiving sensor signals characterizing a current environment of the wireless device;
- processing the sensor signals with a context inference engine;
- outputting a current context result from the processing by the context inference engine;
- forming a context-activity pair by selecting an activity and pairing it with the current context result;
- searching ~~a the~~ database of recommendations using the context-activity pair without user identification ~~using the context-activity pair~~ wherein the database comprises a table listing context-activity pairs each related to (i) a listing of service recommendations and (ii) a listing of number times recommended for each service recommendation ; and
- providing recommendations to the user in response to the searching step.

2. (Original) The method of claim 1, wherein the processing of the sensor signals with a context inference engine is embodied as programmed instructions executed within the user's wireless device.

3. (Original) The method of claim 1, wherein the processing of the sensor signals with a context inference engine is embodied as programmed instructions executed within a separate network server in response to signals from the user's wireless device.

4. (Original) The method of claim 1, wherein the sensor signals are selected from the group consisting of positioning signals, touch signals, audio signals, compass signals, ambient light signals, ambient temperature signals, three-axis acceleration signals, time signals, and the device's operational mode signals.

5. (Previously Presented) The method of claim 3, wherein the wireless device offloads a portion of the processing of the sensor signals to a context inference engine to the server.

6. (Original) The method of claim 1, wherein the selecting of an activity is automatically performed in the wireless device.

7. (Original) The method of claim 1, wherein the selecting of an activity performed by the user in the wireless device.

8. (Original) The method of claim 3, wherein the signals from the user's wireless device are sent to the server without any user identification.

9. (Original) The method of claim 1, which further comprises:
providing the recommendation in a separate server in response to context-activity pair information received at the server from the user's wireless device.

10. (Original) The method of claim 9, which further comprises:
maintaining the database as a context-activity pair database by the server;
associating in the database the context-activity pair information with appropriate recommendations made in the past to many users.

11. (Original) The method of claim 10, which further comprises:
making new recommendations to the user in response to the context-activity pair information submitted by the wireless device; and
gathering the new recommendations and adding them to the database;
whereby the variety, quality and pertinence of the recommendations in the database grows as the recommendation system is used.

12. (Original) The method of claim 11, which further comprises:
compiling statistical usage information about the recommendations and storing the usage information in the database.

13. (Original) The method of claim 12, which further comprises:
providing the statistical usage information to the wireless device accompanying the
recommendations.

14. (Original) The method of claim 13, which further comprises:
filtering the recommendations received at the wireless device by using the statistical
usage information accompanying the recommendations.

15. (Original) The method of claim 1, wherein said providing step further comprises:
filtering the recommendations at the wireless device using statistical usage information
associated with the recommendations.

16. (Original) The method of claim 1, wherein said providing step further comprises:
accessing a history log of previous recommendations provided to the user;
filtering new recommendations from the previous recommendations and providing the
new recommendations to the user.

17. (Original) The method of claim 1, wherein said providing step further comprises:
accessing a history log of previous recommendations provided to the user, including
ratings of the previous recommendations;
filtering recommendations using the ratings and providing the filtered recommendations
to the user.

18. (Original) The method of claim 1, which further comprises:
providing the recommendations to an application program.

19. (Original) The method of claim 3, which further comprises:
providing to the user control over the privacy of the user's information within the network
server.

20. (Original) The method of claim 19, which further comprises:
maintaining the database as a context-activity pair database by the server, which contains no personal information about the user;
associating in the database the context-activity pair information with appropriate recommendations made in the past to many users.

21. (Original) The method of claim 20, which further comprises:
making new recommendations to the user in response to the context-activity pair information submitted by the wireless device; and
gathering the new recommendations and adding them to the database without any personal information about the user.

22. (Currently Amended) An apparatus to enable a wireless device to provide recommendations to its user that are appropriate to the device's current environment, comprising:
a processor;
a memory coupled to the processor, programmed to perform the steps of:
receiving sensor signals characterizing a current environment of the wireless device;
processing the sensor signals with a context inference engine;
outputting a current context result from the processing by the context inference engine;
forming a context-activity pair by selecting an activity and pairing it with the current context result;
causing ~~a the~~ database of recommendations to be searched using the context-activity pair without user identification wherein the database comprises a table listing context-activity pairs each related to (i) a listing of service recommendations and (ii) a listing of number times recommended for each service recommendation; and
providing recommendations to the user in response to the searching step.

23. (Original) The apparatus of claim 22, wherein the processing of the sensor signals with a context inference engine is embodied as programmed instructions executed within the user's wireless device.

24. (Original) The apparatus of claim 22, wherein the processing of the sensor signals with a context inference engine is embodied as programmed instructions executed within a separate network server in response to signals from the user's wireless device.

25. (Currently Amended) A wireless device to provide recommendations to its user that are appropriate to the device's current environment, comprising:

a sensor for providing sensor signals as a metadata vector which represents the current sensor signals and characterizes the current state of the wireless device

characterizing a current environment of the wireless device;

a context inference engine coupled to the sensor, for processing the sensor signals said context inference engine providing a current context result from the processing;

a processor coupled to the context inference engine, for forming a context-activity pair by selecting an activity and pairing it with the current context result;

a database coupled to the processor, for providing recommendations using the context-activity pair without user identification wherein the database comprises a table listing context-activity pairs each related to (i) a listing of service recommendations and (ii) a listing of number times recommended for each service recommendation; and

an output device coupled to the database, for providing the recommendations to the user in response to the context-activity pair.

26. (Currently Amended) A system to provide recommendations to the user of a wireless device that are appropriate to the device's current environment, comprising:

a sensor in the wireless device for providing sensor signals as a metadata vector which represents the current sensor signals and characterizing a current environment of the wireless device;

appending a message authentication code and digital signature to insure the integrity of the metadata vector;

a processor coupled to the sensor, for forming pair information by selecting an activity and pairing it with current sensor information derived from said sensor signals, said processor sending the pair information to a server;

a context inference engine in the server coupled to the wireless device, for processing the context-activity pair information, said context inference engine providing a current context result from the processing;

a database coupled to the context inference engine, for providing recommendations using the activity and current result without user identification without user identification wherein the database comprises a table listing context-activity pairs each related to (i) a listing of service recommendations and (ii) a listing of number times recommended for each service recommendation; and

an output device in the wireless device and coupled to the database, for providing recommendations to the user.

27. (Original) A business method to enable a wireless device to provide recommendations to its user that are appropriate to the device's current environment, comprising:

a metadata vector which represents the current sensor signals characterizing a current environment of the wireless device with a current context result;

appending a message authentication code and digital signature to insure the integrity of the metadata vector:

forming a context-activity pair by selecting an activity and pairing it with the current context result;

accessing a database of recommendations using the context-activity pair without including any user personal data; and

providing recommendations to the wireless device from the database.

28. (Currently Amended) The business method of claim 27, which further comprises: gathering the new recommendations and adding them to the database without including any user personal data.

29. (Original) The business method of claim 27, which further comprises: compiling statistical usage information about the recommendations and storing the usage information in the database.

30. (Original) The business method of claim 29, which further comprises:
providing the statistical usage information to the wireless device accompanying the
recommendations.

31. (Original) The business method of claim 27, which further comprises:
filtering the recommendations received at the wireless device by using the statistical
usage information accompanying the recommendations.

32. (Original) The business method of claim 27, which further comprises:
accessing a history log of previous recommendations provided to the user;
filtering new recommendations from the previous recommendations and providing the
new recommendations to the user.

33. (Original) The business method of claim 27, which further comprises:
accessing a history log of previous recommendations provided to the user, including
ratings of the previous recommendations;
filtering recommendations using the ratings and providing the filtered recommendations
to the user.

34. (Original) The business method of claim 27, which further comprises:
providing the recommendations to an application program.

35. (Original) The business method of claim 28, which further comprises:
providing at least portions of the database to a third party service provider.

36. (Currently Amended) A method to enable a wireless device to provide
recommendations to its user that are appropriate to the device's current environment, comprising:
receiving sensor signals characterizing a current environment of the wireless device;
processing the sensor signals with a context inference engine to produce a set of current
context results;

forming a set of context-activity pairs by selecting an activity and pairing it with the set of current context results;

accessing a set of related service history items from a history log;

forming context-activity pair information from the set of current context results and the set of related service history items;

searching ~~a the~~ database of recommendations using the context-activity pair without user identification wherein the database comprises a table listing context-activity pairs each related to (i) a listing of service recommendations and (ii) a listing of number times recommended for each service recommendation; and

providing recommendations to the user in response to the searching step.

37. (Original) The method of claim 36, which further comprises:
providing the recommendation in a separate server in response to context-activity pair information received at the server from the user's wireless device.

38. (Original) The method of claim 37, which further comprises:
maintaining the database as a context-activity pair database by the server;
associating in the database the context-activity pair information with appropriate recommendations made in the past to many users.

39. (Original) The method of claim 38, which further comprises:
making new recommendations to the user in response to the context-activity pair information submitted by the wireless device; and
gathering the new recommendations and adding them to the database;
whereby the variety, quality and pertinence of the recommendations in the database grows as the recommendation system is used.

40. (Original) The method of claim 39, which further comprises:
compiling statistical usage information about the recommendations and storing the usage information in the database.

41. (Original) The method of claim 40, which further comprises:
providing the statistical usage information to the wireless device accompanying the
recommendations.

42. (Original) The method of claim 41, which further comprises:
filtering the recommendations received at the wireless device by using the statistical
usage information accompanying the recommendations.

43. (Original) The method of claim 42, wherein said providing step further comprises:
filtering the recommendations at the wireless device using statistical usage information
associated with the recommendations.

44. (Original) The method of claim 43, wherein said providing step further comprises:
accessing a history log of previous recommendations provided to the user;
filtering new recommendations from the previous recommendations and providing the new
recommendations to the user.

45. (Original) The method of claim 44, wherein said providing step further comprises:
accessing a history log of previous recommendations provided to the user, including
ratings of the previous recommendations;
filtering recommendations using the ratings and providing the filtered recommendations
to the user.

46. (Currently Amended) A method to enable a wireless device to provide
recommendations to its user that are appropriate to the device's current environment, comprising:
receiving sensor signals as a metadata vector characterizing a current environment of the
wireless device;
processing the sensor signals with a context inference engine utilizing adaptive and
continuous learning processes;
outputting a current context result from the sensor processing by the context inference
engine;

selecting a user activity and pairing the activity with the current context result to form a context-activity pair;

searching a database of context-activity pairs in a recommendation system while maintaining the privacy of the user wherein the database comprises a table listing context-activity pairs each related to (i) a listing of service recommendations and (ii) a listing of number times recommended for each service recommendation;

providing recommendations to the user relative to the context-activity pair in response to the searching step;

filtering the recommendations using an algorithm to identify new and significant information as new recommendations; and

displaying the new recommendations to the user.

47. (Previously Added) The method of Claim 46 further comprising:
forming a metadata vector of the sensor signals for processing in the device or transmission to a server for processing.

48. (Previously Amended) The method of Claim 46 further comprising:
establishing a privacy user interface to a privacy control element enabling the user to set privacy policies related to access to the context inference engine, and to alert the user that an application program is attempting to register to receive the user's private context awareness information.

49. (Previously Added) The method of Claim 46 further comprising:
excluding user personal data from the database of context-activity pairs.

50. (Previously Added) The method of Claim 46 further comprising:
providing context activity pair data sets in the database to third parties for market research.

51. (Currently Amended) A method to enable a wireless device to provide recommendations to its user that are appropriate to the device's current environment, comprising:

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receiving sensor signals as a metadata vector characterizing a current environment of the wireless device;

appending a message authentication code and digital signature to insure the integrity of the metadata vector;

processing the sensor signals with a context inference engine to produce a set of current context results;

forming a set of context-activity pairs by selecting an activity and pairing it with the set of current context results;

searching a set of related service history items from a history log using the set of context-activity pairs;

forming context-activity pair information from the set of context-activity pair and the set of related service history items;

searching a database of recommendations using the context-activity pair information without user identification wherein the database comprises a table listing context-activity pairs each related to (i) a listing of service recommendations and (ii) a listing of number times recommended for each service recommendation; and

providing recommendations to the user in response to the searching step.

52. (Previously Added) The method of Claim 1 further comprising:
forming a database of context-activity pairs and related service recommendations in a remote server;

controlling access of applications to private context information via a privacy control block;

matching context-activity pairs in the database similar to the pair received from the context inference engine; and

providing alternative recommendations to the user for the selection of a context- activity using a recommendation algorithm in response to the searching step.

53. (Previously Added) The apparatus of Claim 22 wherein the processor further comprises:

forming a database of context-activity pairs and related service recommendations in a remote server;

controlling access of applications to private context information via a privacy control block; and

providing alternative recommendations to the user for the selection of a context- activity using a recommendation algorithm in response to the searching step.

54. (Previously Added) The wireless device of Claim 25 further comprising:
means for matching contact-activity pairs in the database similar to the pair received from the context inference engine; and

the output device providing alternative recommendations to the user in response to the context-activity pair.

55. (Previously Added) The system of Claim 26 further comprises
The database includes context-activity pairs and related service recommendations;
a privacy control block controlling access of applications to private context information;
and

the output device provides alternative recommendations to the user.

56. (Previously Added) The business method of Claim 27 further comprising:
forming a database of context-activity pairs and related service recommendations;
controlling access of applications to private context information via a privacy control block; and wherein

alternative recommendations are provided to the wireless device from the database for the selection of a context- activity using a recommendation algorithm.

57. (Previously Added) The method of Claim 36 further comprising:
forming a database of context-activity pairs and related service recommendations;
controlling access of applications to private context information via a privacy control
block;
matching contact-activity pairs in the database similar to the pair received from the
context inference engine; and wherein
alternative recommendations are provided to the wireless device from the database for the
selection of a context- activity using a recommendation algorithm.

58. (Previously Added) The method of Claim 46 further comprising:
forming a database of context-activity pairs and related service recommendations;
controlling access of applications to private context information via a privacy control
block; and wherein
alternative recommendations are provided to the user for the selection of a context-
activity using a recommendation algorithm.

59. (Previously Added) The method of claim 56 wherein at least one source of
services matching the context-activity pair received from the wireless device

60. (Previously Added) The method of claim 18 wherein the application program
receives recommendations from application program interfaces for further processing without
showing the recommendation to the user.

61. (Previously Presented) The method of claim 11 wherein new recommendations
generated by the server are added to the database for statistical purposes and expanded user
selections.

62. (Currently Amended) The method of Claim 46 1 wherein a the metadata vector
represents the current sensor signals; characterizes the current state of the wireless device, and
combined with the user activity as the context-activity pair. A current environment of the current
state of the wireless device